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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,407	09/10/2003	Gail A. Alverson	324748001US1	4638
25096 7590 02/20/2007 PERKINS COIE LLP PATENT-SEA P.O. BOX 1247 SEATTLE, WA 98111-1247			EXAMINER WILSER, MICHAEL P	
			ART UNIT	PAPER NUMBER
			2109	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
2 MONTHS		02/20/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/659,407	<b>Applicant(s)</b> ALVERSON ET AL.	
	<b>Examiner</b> Michael Wilser	<b>Art Unit</b> 2109	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-47 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/29/03, 8/27/04, 10/7/04, 6/9/05, & 7/13/06.

### **DETAILED ACTION**

This action is in response to the original filing of September 10, 2003. Claims 1-47 are pending and have been considered below.

#### ***Information Disclosure Statement***

1. The information disclosure statement filed September 29, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. The IDS claims that all foreign documents and non-patent literature are contained in the original filing of the parent application No. 09/192,205 filed on November 13, 1998. But, all of the documents listed on the IDS are not present in this application. The prior application only has 33 documents associated with it whereas the current applications IDS lists 50 documents. The missing documents need to be filed to be considered for examination.

#### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 506 on page 18 paragraph 61 line 10, 1601 on page 26, paragraph 75 line

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4, 1602 on page 26 paragraph 75 line 4, 1000 on page 26 paragraph 75 line 9, 1703 on page 30 paragraph 82 line 3, and 1702 on page 30, paragraph 82 line 4.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 1004 in Figure 10, 1100 in Figure 16A, 1300 in Figure 16A, 1502 in Figure 17, and 1503 in Figure 17.

4. The drawings are objected to because each individual item within a figure is supposed to be labeled with a reference character. In Figure 16B there are no reference characters in the drawing. The main heading at the top of the drawing needs to be numbered and so do the other parts of the table if they are separate features from the main heading.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "1502 and 1503" has been used to designate both "add thread to blocked pool" and "invoke virtual processor code" in Figure 15 and "unwind stack frames" and "indirect lmgjmp" in Figure 17 respectively. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

7. The disclosure is objected to because of the following informalities: the examiner notes the use of acronyms (e.g. slim, scur, and sres) throughout the specification without first including a description in plain text, as required. Even though these acronyms are later explained they have to have their meaning given the first time they are used.

8. On page 18 of the specification on line 29 the specification reads "In step 516, the routine clears the team swap header". Then two lines later in line 31 the specification repeats the exact same sentence word for word. Since step 516 comes

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after step 515 and does not loop back around to step 514 the examiner is interpreting the first instance of this line as being a typo and incorrectly inserted. When comparing to Figure 5B the specification as interpreted as a series from 514 to 515 to 516 and therefore the first mention of 516 on line 29 should be removed from the specification.

9. On page 22 of the specification paragraph 69 line 17 the specification reads "amount greater that the slim value". The examiner is interpreting this as a typo and that the specification should have read "amount greater than the slim value".

10. On page 27 of the specification paragraph 76 the applicant references Figure 16B and discusses different features of the figure in detail. However, the applicant omits reference numbers to the figure that is being discussed. The applicant needs to add reference numbers to the specification so that one of ordinary skill in the art can read the specification and easily flip back and forth between the drawings and specification with minimal confusion.

Appropriate correction is required.

### ***Allowable Subject Matter***

11. Claims 1-47 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach or render obvious the limitations of the independent Claims 1, 6, 11, 17, 23, 29, 35, 41, and 44. The prior art of record teaches of having multiple processing systems which perform multi-tasking in real-time processors. The prior art teaches of how threads within the processor are given an

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allotted time to perform their function and then are removed from the processor and placed at the back of the cue. It is also taught that when these threads are removed from the processor that their current state is saved so that when they return to the processor they can continue from where they have left off.

13. However, the prior art does not teach the process of determining whether a process is ready to be swapped out of the processor. The applicant discloses that the processor first has to determine whether that stream is the controlling stream of the process. Once the controlling stream of the current process is found it is then allowed to be terminated. At this time the operating system is informed that the process can then be swapped out according to one of the already known processes swapping techniques within the art.

14. Therefore, since the prior art does not explicitly teach the underlying methods of preparing a task to be swapped out of a processor the claims are found to be in allowance. Where as many of the dependent claims are disclosed by the prior art they are still found to be allowable since the parent claims that they come from are found to be in allowance.

### ***Conclusion***

15. This application is in condition for allowance except for the above mentioned formal matters:

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.



A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Spix et al. (US 5,179,702) System and method for controlling a highly parallel multiprocessor using an anarchy based scheduler for parallel execution thread scheduling.
- b. Dubey et al. (US 5,812,811) Executing speculative parallel instructions threads with forking and inter-thread communication.
- c. Mallick et al. (US 5,887,166) Method and system for constructing a program including a navigation instruction.
- d. Click (US 6,059,840) Automatic scheduling of instructions to reduce code size.
- e. Witt (US 6,094,716) Register renaming in which moves are accomplished by swapping rename tags.
- f. Borkenhagen et al. (US 6,105,051) Apparatus and method to guarantee forward progress in execution of threads in a multithreaded processor.
- g. Dowling (US 6,282,638) Virtual shadow registers and virtual register windows.
- h. Chan (US 6,466,898) Multithreaded, mixed hardware description languages logic simulation on engineering workstations.
- i. Tanaka et al. (US 6,470,376) Processor capable of efficiently executing many asynchronous event tasks.

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j. Turner et al. (US 6,505,229) Method for allowing multiple processing threads and tasks to execute on one or more processor units for embedded real-time processor systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Wilser whose telephone number is (571) 270-1689. The examiner can normally be reached on Mon-Fri 7:30-5:00 EST (Alt Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre can be reached on (571) 270-1065. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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MPW  
February 16, 2007



James Myhre  
Supervisory Patent Examiner